

Application No. 09/681,403
Amendment dated September 8, 2003
Reply to Office Action of June 6, 2003

REMARKS

Claims 21, 22 and 27-42 are pending. Claims 43-46 are added herein. Accordingly, claims 21, 21 and 27-46 are at issue.

Claims 21, 22 and 27-42 stand rejected under 35 U.S.C. §103(a) as unpatentable over Barenys in view of Fohl (EP 0 691,245 corresponding to U.S. 5,676,396 used for reference herein).

The rejection, as it may apply to the claims presented herein, is respectfully traversed.

Claims 21 and 22 are both directed to a steering wheel arrangement including a hub for fixing to a steering column and at least one spoke for being connected to a steering wheel rim. A bowl-shaped element is connected to the hub and the spoke and includes a lower shell part or portion and an upper shell part or portion with the upper shell part/portion having larger outer dimensions than the lower shell part/portion and the parts/portions connected by a ledge extending radially outward from the lower shell part/portion to the upper shell part/portion. As amended, claims 21 and 22 require the lower shell part/portion and upper shell part/portion of the bowl-shaped element to be integral with each other. None of the relied upon art discloses or suggests a bowl-shaped element having a substantially conical configuration, and including upper and lower parts/portions sized as recited in claims 21 and 22 that are formed integral with each other.

In Barenys, the steering wheel structure is formed by a hub 1 and a deformation pot 7 which are separate components that secured to each other. More specifically, the deformation pot 7 forms a seat at its enlarged upper end for receiving the bottom wall 5 of the hub 1 thereagainst. In particular, the upper end of the pot needs to be specially sized to tightly accommodate the outer diameter of the hub bottom wall 5 seated flush therein as shown in FIG. 2. Moreover, the cylindrical wall of the hub 1 and the cylindrical upper and lower wall portions of the deformation pot 7 can hardly be said to confer a substantially conical configuration to these components, as required in claims 21 and 22 for the bowl-shaped element.

Fohl is similarly deficient in that it teaches significant structure for allowing several components to be fastened together. Specifically, Fohl shows a mounting flange in hub part 18 including abutment surface 20, a mounting flange or attachment ring 26 for the airbag 24, and a mounting flange 42 for the gas generator housing 40 which are all apertured so that they can be fastened together by screws 54. In addition, Fohl teaches that the hub part 18 is to have a generally rectangular cross-sectional configuration (column 2, lines 11-13), and the housing body 40 for the generator has a cylindrical configuration (column 2, lines 26-30). When assembled, the hub part 18 and housing 40 do not form a substantially conical configuration as required of the bowl-shaped element in claims 21 and 22.

In the Action, it is asserted using one piece to form an article that had formerly been formed by two pieces involves only routine skill in the art. Applicants do not argue against this general proposition, but do note that the article in question is required to be a bowl-shaped element having a substantially conical configuration, as recited in claim 21 and 22. Thus whether or not the structures disclosed in Barenyi and Fohl are formed of one piece, they still would not meet the limitations recited in claims 21 and 22 directed to the substantially conical configuration of the bowl-shaped element. In addition, it is submitted that the recitation of integral upper and lower parts/portions of the bowl-shaped element also is of significance where the only cited art provides for very specific structure that would counsel against such an integral construction of their components. Accordingly, it is believed claims 21 and 22, and claims 27-42 which depend cognately therefrom, are allowable over the combination of Barenyi and Fohl.

Turning next to the added claims, they are directed to a vehicle steering wheel arrangement for being connected to a steering column. More particularly, independent claim 43 calls for a steering wheel rim and at least one spoke connected to the rim. A generally bowl-shaped element is between the spoke and steering column. An integral wall of the bowl-shaped element has a generally varying radius from an axis of the steering column over at least an arcuate portion of the wall extending along the axis. An upper portion of the element includes an upper opening about which the integral wall extends for receiving a airbag

therein. A smaller lower portion of the element includes a lower opening about which the integral wall extends for receiving an inflating device therein. The lower portion includes an upper end at which the lower opening opens to the upper opening. A radially extending portion of the integral wall has a radially inner end at the upper end of the lower portion and a radially outer end that terminates at a lower end of the upper portion such that the radial wall portion is the only element wall portion extending between the upper and lower element portions and the lower opening opens to the upper opening without interfering wall portions of the element therebetween. The cited references do not disclose or suggest the recited bowl-shaped element including an integral wall that extends about different size upper and lower portions thereof and which further includes a radially extending portion of the integral wall therebetween.

In the Action, a ledge structure is pointed to in FIG. 2 of Barenyi. As previously discussed, this is the interface between the enlarged upper end of the deformation pot 7 and the bottom wall 5 of the hub 1 in the steering wheel structure taught by Barenyi. This ledge is not a radially extending portion of an integral wall that forms both the hub 1 and the deformation pot 7. Instead Barenyi shows the bottom wall 5 in abutment against the seat formed by the enlarged upper end of the wall of the deformation pot 7. Accordingly, there are two wall portions that extend in abutment with each other radially between the upper hub 1 and the lower deformation pot 7. Further, it can be seen that the hub bottom wall 5 extends radially inwardly beyond the upper cylindrical wall portion of the deformation pot 7 to form a constricted aperture 6 between the opening defined by the lower deformation pot and the opening defined by the hub 1.

Accordingly, Barenyi lack an integral radially extending wall portion having a radially inner end at the upper end of the lower portion of the bowl-shaped element, as required in claim 43. Instead, the radially inner end of the wall 5 extends radially inwardly beyond the end of the upper end of the deformation pot 7. In this manner, not only do the hub 1 and deformation pot 7 define two walls that extend radially inwardly, the bottom wall continues radially inward to the constricted aperture 6 so that there is an interfering wall portion

between the lower opening defined by the deformation pot 7 and the upper opening defined by the hub 1. This is in contrast to the requirement in claim 43 that the radially extending portion of the bowl-shaped element integral wall have its radially inner end at the upper end of the lower portion so that the lower opening opens to the upper opening without interfering wall portions of the element therebetween.

Fohl, like Barenyi, fails to disclose or suggest an integral wall of a bowl-shaped element as recited in claim 43. More specifically, Fohl also lacks the radially extending portion of the integral wall that has a radially inner end at the upper end of the lower portion and a radially outer end terminating at the lower end of the upper portion such that the radial wall portion is the only element wall portion extending radially between the upper and lower element portions. As previously discussed, Fohl discloses several mounting flanges which are all brought into abutment with each other for being screw fastened together. Thus, Fohl shows a mounting flange including abutment surface 20 in the hub part 18, mounting flange 26 for the airbag 24 and mounting flange 42 for the generator housing body 40 which, when assembled, provide three radially extending wall portions between the hub part 18 and the housing body 40. Accordingly, it is believed claims 43, and claims 44-46 which depend cognately therefrom, are allowable over the cited art.


The dependent claims 44-46 recite further limitations which further delineate over the relied upon references. For example, claim 44 depends from claim 43 and calls for the varying radius wall portion to be disposed along the upper portion of the bowl-shaped element. In Barenyi, the hub 1 includes a cylindrical wall 4, and in Fohl, the hub part 18 has a rectangular configuration. Claim 45 depends from claim 44 and further requires the spoke to have a gradually varying radius similar to the wall portion to provide a continuous gradual curvature along and between the wall portion and spoke. This arrangement is seen best in FIGS. 2 and 3 in the present application. Neither Barenyi or Fohl disclose or suggest the combination of the spoke and wall portion having a gradually varying radius to provided the continuous gradual curvature as recited in claim 45. Claim 46 depends from claim 43 and specifies that the integral wall of the bowl-shaped element is of a unitary construction so as to avoid the need

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for securing the upper and lower element portions to each other in a distinct attachment operation. In Barenyi, the hub 1 needs to be secured to the deformation pot 7, and in Fohl the gas generator body 40 needs to be secured to the hub part 18 thus requiring distinct attachment operations to assemble these prior art structures.

Based on the foregoing, reconsideration and allowance of claims 21, 22 and 27-42, and consideration and allowance of added claims 43-46, are respectfully requested.

Respectfully submitted,

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